What Is Claimed Is:

1. An apparatus to control slurry flow in a chemical mechanical polishing apparatus for planarizing an object to be polished by supplying slurry on a grinding pad through a slurry injection nozzle, the apparatus comprising:

a slurry supply unit to supply slurry to the slurry injection nozzle through a slurry supply line;

a photo image sensor to detect a generally cross-sectional image of the slurry flowing in a by-pass diverged from the slurry supply line;

a slurry measuring unit to analyze the image captured by the photo image sensor to measure the sizes of particles included in the slurry and the density of the slurry; and

a slurry flow control unit to control the slurry supply unit based upon the particle sizes and the slurry density measured by the slurry measuring unit.

2. An apparatus to control slurry flow in a chemical mechanical polishing apparatus for planarizing an object to be polished by supplying slurry on a grinding pad through a slurry injection nozzle, the apparatus comprising:

a slurry supply unit to supply slurry to the slurry injection nozzle through a slurry supply line;

a photo image sensor to detect a generally cross-sectional image of the slurry flowing in a by-pass diverged from the slurry supply line;

a slurry measuring unit to analyze the image captured by the photo image sensor to measure the sizes of particles included in the slurry and the density of the slurry;

a diluent solution supply unit to supply diluent solution into the by-pass to reduce a concentration of particles in the slurry; and

a slurry flow control unit to control the slurry supply unit based upon the particle sizes and the slurry density measured by the slurry measuring unit.

3. An apparatus as defined in claim 2, wherein the diluent solution is pure water or a solution with the same composition as the slurry solution.

4. A method to control slurry flow in a chemical mechanical polishing apparatus for planarizing an object to be polished by supplying slurry on a grinding pad through a slurry injection nozzle, the method comprising:

supplying slurry to the slurry injection nozzle through a slurry supply line;

introducing slurry into a by-pass diverged from the slurry supply line;

capturing a cross-sectional image of the by-pass to measure the sizes of particles included in the slurry and the density of the slurry; and

controlling supply of the slurry based upon the measured sizes of particles and density of slurry.

5. A method to control slurry flow in a chemical mechanical polishing apparatus for planarizing an object to be polished by supplying slurry on a grinding pad through a slurry injection nozzle, the method comprising:

supplying slurry to the slurry injection nozzle through a slurry supply line;

introducing slurry into a by-pass diverged from the slurry supply line;

supplying a diluent solution into the by-pass to reduce a concentration of particles of the slurry;

capturing a cross-sectional image of the by-pass to measure the sizes of particles included in the slurry and the density of the slurry; and

controlling supply of the slurry based upon the measured sizes of particles and density of slurry.

6. A method as defined in claim 5, wherein the diluent solution is pure water or a solution with the same composition as the slurry solution.

7. A method as defined in claim 5, wherein the density of the slurry is calculated to be higher in proportion to an amount of supplied diluent solution.

8. A method as defined in claim 5, wherein an amount of the particles is calculated to be higher in proportion to an amount of supplied diluent solution.

9. A method as defined in claim 5, wherein the density of the slurry is calculated to be higher in inverse proportion to the amount of supplied slurry.

10. A method as defined in claim 5, wherein an amount of the particles is calculated to be higher in inverse proportion to the amount of supplied slurry.